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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Duncan W. McBranch :  
Serial No. : 09/298,297 : Examiner:  
Filed : April 23, 1999 :  
For : PHOTOINDUCED CHARGE- : Art Unit:  
TRANSFER MATERIALS :  
FOR NONLINEAR OPTICAL :  
APPLICATIONS :

Assistant Commissioner for Patents  
Washington, DC 20231



**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR 1.56 AND 1.97**

Sir:

The documents listed below, copies attached, may be material to the examination of the subject application and are therefore submitted in compliance with the duty of disclosure defined in 37 CFR 1.56.

1. D. McBranch, "Supramolecular Photoinduced Charge Transfer Materials for Nonlinear Optics," Curr. Opin. Solid-State and Mater. Sci., **3**, 203 (1998);

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**CERTIFICATE OF MAILING (37 CFR 1.8(a))**

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Assistant Commissioner of Patents, Washington, DC 20231.

Samuel M. Freund  
(Type name of person mailing paper)

(Signature of person mailing paper)

Date: August 26, 1999

2. D. McBranch *et al.*, "Optical Limiting Materials," U.S. Patent No. 5,741,442;
3. K. Lee *et al.*, "Photoinduced Absorption and Photoinduced Reflectance in Conducting Polymer/Methanofullerene Films: Nonlinear-optical Changes in the complex Index of Refraction," *Phys. Rev. B* **54**, 10525 (1996);
4. E. Maniloff *et al.*, "Ultrafast Holography Using Charge-Transfer Polymers," *Opt. Comm.* **141**, 243 (1997);
5. S.R. Marder *et al.*, "Design and Synthesis of Chromophores and Polymers for Electro-optic and Photorefractive Applications," *Nature* **388**, 845 (1997);
6. D. McBranch, "Supramolecular Photoinduced Charge Transfer Materials for Nonlinear Optics," *Curr. Opin. Solid-State and Mater. Sci.*, **3**, 203 (1998);
7. E. Maniloff *et al.*, "Ultrafast Holography using Charge-Transfer Polymers," *Opt. Comm.* **141**, 243 (1997);
8. H.E. Katz *et al.*, "Polar Orientation of Dyes in Robust Multilayers by Zirconium Phosphate-Phosphonate Interlayers," *Science* **254**, 1485 (1991);
9. G. Decher *et al.*, "Buildup of Ultrathin Multilayer Films by a Self-Assembly Process:III. Consecutively Alternating Adsorption of Anionic and Cationic Polyelectrolytes on Charged Surfaces," *Thin Solid Films* **210**, 831 (1992);
10. T.M. Cooper *et al.*, "Formation of Polypeptide - Dye Multilayers by an Electrostatic Self-Assembly Technique," *Langmuir* **11**, 2713 (1991);
11. A.C. Fou *et al.*, "Fabrication and Properties of Light-Emitting Diodes Based on Self-Assembled Multilayers of Poly(Phenylene Vinylene)," *J. Appl. Phys.* **79**, 7501 (1996);
12. X. Wang *et al.*, "Self-Assembled Second Order Nonlinear Optical Multilayer Azo Polymer," *Macromolecular Rapid Comm.* **18**, 451 (1997);
13. Y. Lvov *et al.*, "Non-Linear Optical Effects in Layer-by-Layer Alternate Films of Polycations and an Azobenzene-Containing Polyanion," *Thin Solid Film* **300**, 107 (1997);
14. K.M. Lenahan *et al.*, "Novel Polymer Dyes for Nonlinear Optical Applications Using Ionic Self-Assembled Monolayer Technology," *Adv. Mater.* **10**, 853 (1998);
15. V.A. Kabanov *et al.*, "Polyelectrolyte Behavior of Astramol Poly(propyleneimine) Dendrimers," *Macromolecules* **51**, 5142 (1998);

16. M. Yan *et al.*, "Spatially Indirect Excitons as Primary Photoexcitations as Primary Photoexcitations in Conjugated Polymers," Phys. Rev. Lett. **72**, 1104 (1994);

17. S. Dante *et al.*, "Photoisomerization of Polyionic Layer-by-Layer Films Containing Azobenzene," Langmuir **15**, 193 (1999);

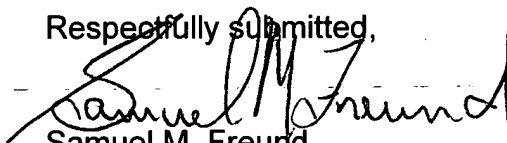
18. F. Li *et al.*, "Effects of Central Metal Ion (Mg, Zn) and Solvent on Singlet Excited-State Energy Flow in Porphyrin-Based Nanostructures," J. Mater. Chem. **7**, 1245 (1997); and

19. J. Mashl *et al.*, "Theoretical and Experimental Adsorption Studies of Polyelectrolytes on an Oppositely Charged Surface," J. Chem. Phys. **110**, 2219 (1999).

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional matter material to the examination of this application does not exist, or that any one or more of these citations constitutes prior art under 35 U.S.C. 102.

It is requested that the above citations be made of record in the prosecution of this application.

Respectfully submitted,



Samuel M. Freund

Attorney for Applicants

Registration No. 30,459

Phone (505) 667-9701

Dated: August 26, 1999

**INFORMATION DISCLOSURE CITATION**  
(Use several sheets if necessary)

Docket Number (Optional)  
**S-91,723**

Application Number  
**09/289,297**

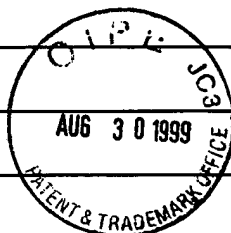
Applicant(s)  
**Duncan W. McBranch**

Filing Date  
**April 23, 1999**

Group Art Unit

**U.S. PATENT DOCUMENTS**

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5,741,442		McBranch et al.	252	582	



**FOREIGN PATENT DOCUMENTS**

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO

**OTHER DOCUMENTS** (Including Author, Title, Date, Pertinent Pages, Etc.)

		D. McBranch, Curr. Opin. Solid-State and Mater. Sci., 3, 203 (1998)
		K. Lee et al., Phys. Rev. B54, 10525 (1996)

EXAMINER

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E. Maniloff et al., Opt. Comm. 141, 243 (1997)

S. R. Marder et al., Nature 388, 845 (1977)

D. McBranch, Curr. Opin. Solid-State and Mater. Sci., 3, 203 (1998)

E. Maniloff et al., Opt. Comm. 141, 243 (1997)

H. E. Katz et al., Science 254, 1485 (1991)

G. Decher et al., Thin Solid Films 210, 831 (1992)

T. M. Cooper et al., Langmuir 11, 2713 (1991)

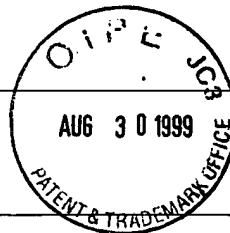
A. C. Fou et al., J. Appl. Phys. 79, 7501 (1996)

X. Wang et al., Macromolecular Rapid Comm. 18, 451 (1997)

Y. Lvov et al., Thin Solid Film 300, 107 (1997)

K. M. Lenahan et al., Adv. Mater. 10, 853 (1998)

V. A. Kabanov et al., Macromolecules 51, 5142 (1998)



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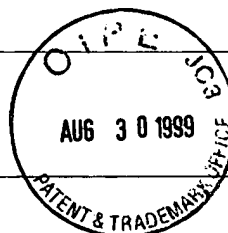
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M. Yan et al., Phys. Rev. Lett. 72, 1104 (1994)

S. Dante et al., Langmuir 15, 193 (1999)

F. Li et al., J. Mater. Chem. 7, 1245 (1997)

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